

DEATH FOR MILLIONS IN 1921'S RECORD HEAT WAVE

Immense Areas, Usually Fertile, Dried Up in Europe and Asia, and Famine Stalks Helpless People—Our Own Crops Damaged

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WHEN the south wind blew softly, there came a blistering, withering heat, carrying on its wings famine, pestilence and death to an already afflicted people.

The great heat wave, which has spread over the world during the present summer, has no parallel in history. There have been hot waves; there have been famines; there have been pestilences, at various times and in many places, but none so blighting and terrible as this. Abnormally high temperatures have prevailed in almost all parts of the northern hemisphere and have continued for an unprecedented length of time.

The burning rays of the sun caused a dry, blistering heat in some sections; while in others—where extreme heat was accompanied by high humidity—human suffering has been great. Dry heat burns and withers. Moist heat kills.

Where Heat Waves Grow And How They Travel

The great, scorching heat waves of our Western States are known as the "Chinook"; in Mediterranean countries as the "Sirocco" and in Russia as the "Buran." These "waves" are accompaniments of areas of low atmospheric pressure, and while, very often, their origin and effect may be relatively local, they can generally be traced, from a beginning in the Pacific Ocean to the south of Japan and Korea, eastward along our northern border, across northern sections of Europe and until they are lost in China and Siberia.

These low pressure areas are known as "cyclonic disturbances" and, when they have developed in magnitude and force, as "cyclones." In other words, all storms, big or little, are areas of relatively low pressure, and, therefore, potential cyclones. In summer they are generally expansive and move sluggishly eastward without very appreciable rotary or progressive force. They might then be well termed atmospheric drones. To the southward of their paths the winds are mostly light south and south-easterly and they often linger for days over a given section, drawing toward their centers vast amounts of warm air; dry warm air from interior and arid lands and moist air from bodies of water and along the sea coasts.

The hot waves that have passed over this country during the past two months have not raised temperatures to previously established records, but they have lingered and in their lingering have parched the Central States to the very great damage of wheat, corn and other crops, and long periods of heat and high humidity have caused many casualties in the Atlantic States. According to a report issued by the Department of Agriculture, there was a decline from the estimated value of summer crops represented by a quarter of a billion dollars. Wheat alone was \$1,000,000 bushels short of estimated production. Almost every crop was adversely affected by constantly high temperatures and absence of rain. Little rain fell in any of the Central or Western States, and in Montana, parts of North Dakota, Illinois, Missouri and other Central States almost a drought prevailed.

The condition has been due to the unusual frequency of the passage of areas of low pressure across our northern tier of States or southern Canada. They have proceeded in almost constant succession and their progress has been comparatively slow.

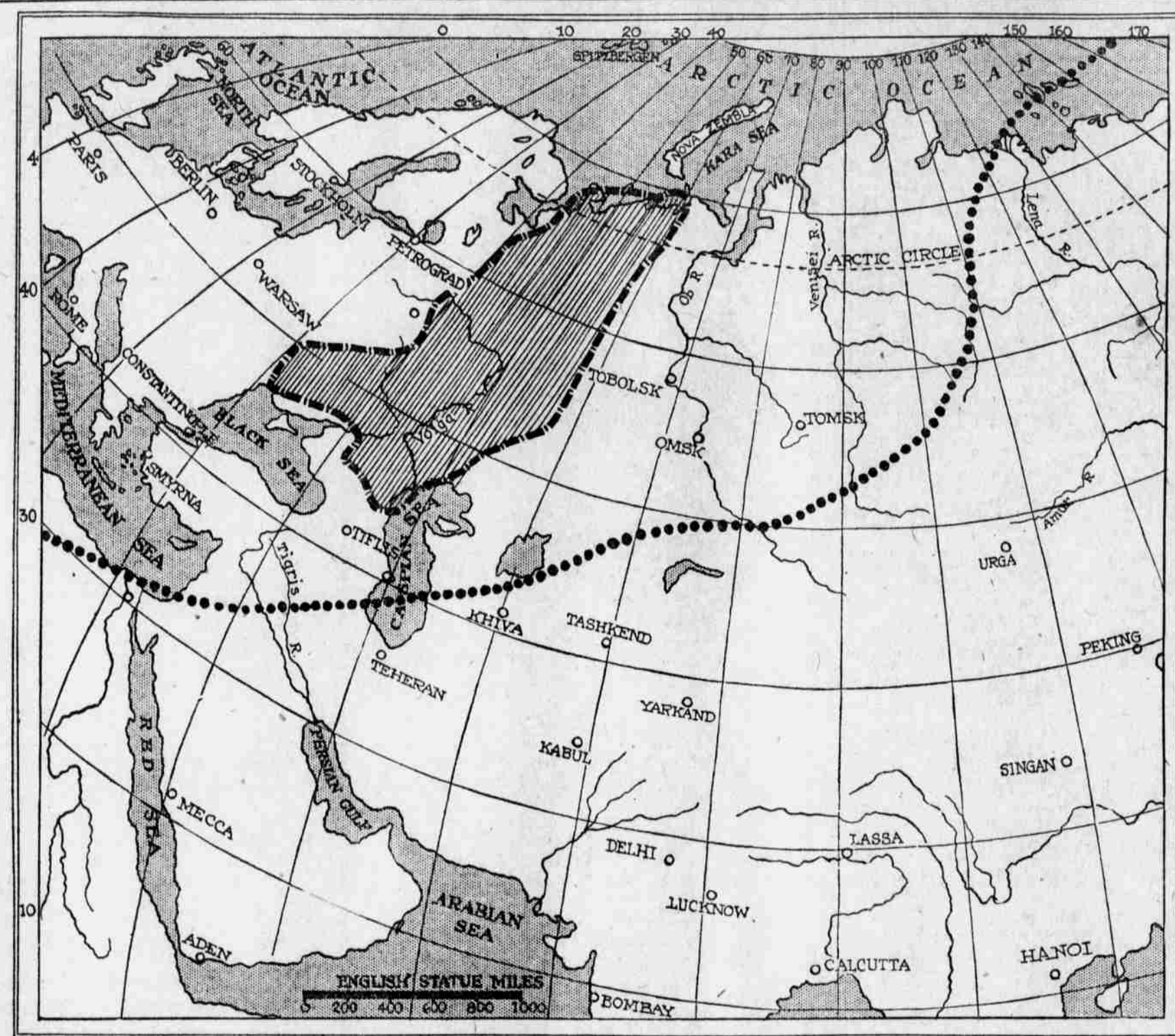
Areas of Low Pressure Caused July's Discomfort

Those depressions passed over the Atlantic, became laden with moisture and their approximate centers entered Europe over the Scandinavian Peninsula. The heat which has been intense in Great Britain and practically all of Europe, has been accompanied in western parts by high humidity and the same sluggish atmospheric conditions that have been notable in this country. The low areas lagged in their progress across northern Europe, constantly drawing heat into the central portions, from Norway eastward to Siberia.

Had these atmospheric depressions been normally active, the heat waves would have come at intervals; instead, each depression overlapped the preceding one and maintained a steady flow of southerly and southeasterly winds, which caused the heat to be as great in northern as in more southerly parts. The vast plains of Russia are storehouses of heat, and, so far as temperature is concerned, compare favorably with our Mojave desert, where summer temperatures, in the sun, range from 125 to 150 degrees.

Great Britain, France and Russia seem to have been the greatest sufferers. In those countries the heat and drought were greater than any experienced during the past forty years. In France the heat was so intense during most of July that much business was suspended. On the 14th of July, the national holiday, it was so hot that all parades, outdoor festivities and sports were, by an act of the Senate, pro-

Map showing the immense areas in Asia and Europe afflicted by the 1921 hot wave. Dotted line shows southern limit; shaded part within the blocked line shows Russia's famine district where millions face death.



hibited. On July 10 the official temperature at Paris touched 99.5 degrees, the highest official record for forty-two years. That temperature, attended by high humidity and absence of appreciable breeze, caused intense suffering. For many days it was actually dangerous to venture into the sun and many prostrations were reported.

The Agricultural Department of France reported pastures burned; corn the only good crop, and all other vegetation in bad condition; crops extremely short and products expensive. The drought covered all of France and at that time no rain had fallen since the 22d of May, and that was merely a shower. All wells and waterways were becoming dry and drinking water was at a premium. Sufferings of live stock, combined with the shortage of vegetable products and their high prices, caused cattle to be rushed to market to be sold at any price, but even those sacrifices did not deter the upward swing of prices upon all food products, including meat.

Mr. Henningsen, Vice-Consul for Denmark at New York, who has just returned from his country, says: "I left Denmark three weeks ago, after having experienced some of the heat and drought. Things were in a bad condition and have been for some time, but before I left a good supply of rain came and saved the crops and replenished the wells. Fortunately, Denmark has a very rich soil and recovered very quickly. Jutland was seriously affected by drought and needed rain very badly. The light, sandy soil there does not retain the moisture. Water was very scarce and everything was drying up."

It has been learned from competent authority that Switzerland has suffered very seriously. The drought began there in May and since then only a few showers have occurred. Extreme heat has been constant, many streams and wells have given out and it was difficult to obtain sufficient water for household purposes. The relative lack of water in the mountains of Switzerland and Italy has driven yepers from their hiding places, and they infest the roadways and villages, and make it rather necessary to watch one's step. From Zermatt, Switzerland, comes the news that never before have there been more accidents among the climbers, and the reason is attributed to the relatively high temperatures, which have caused snow bridges to melt and become unsafe, and developed dangerous crevasses among the glaciers, and, of course, the heat of other lands has sent more tourists to meet the accidents. Alpine lakes have dried to the extent that the foundations of certain houses, laid some 2,000 years ago, have been exposed and found to be in perfect preservation.

Paris press despatches indicate that Hungary suffers from both heat and drought; that temperatures of 100 degrees have occurred at many places, accompanied by high humidity, and that all industry has been impeded.

Mr. R. Munk, secretary to the Norwegian Consul at New York, says: "While Norway has been very hot, the crops were not much affected. It will be a medium year; we have plenty of water, but we need flour and sugar."

Great Britain has had its full share of

heat and drought; no rain has fallen for one hundred days or more and its greatest dread is of a water famine, which up to this writing was fast approaching. Only heavy rains can prevent great suffering. England is now on water ration. It is being sold by the bucket by those fortunate enough to have a well sufficiently deep. Many wells have already become exhausted and deeper shafts are being sunk. Inhabitants along the River Shannon in Ireland are paying one cent a bucket for water and travelling long distances to get it.

Col. J. B. P. Karslake, chairman of the Metropolitan Water Board of London, says: "The water in the Thames and Lea rivers is likely to diminish further before it recovers and the depleted reservoirs are replenished. Both rivers are very much below normal, particularly the Lea. The board's present abstraction from the Thames amounts to about 165,000,000 gallons per day. This exceeds the board's statutory right by 35,000,000 gallons. The storage supplies are becoming seriously affected. Their yields have fallen off considerably."

Surrey, England, reports all vegetation, except roses, burned up.

The agricultural correspondent to the London Times says: "Great Britain is experiencing what the older among us may remember the memorable 1868. There has been nothing comparable with it since that year, unless possibly 1893 and 1911. The contention is warranted up to a point, but inquiries in an extreme season like this bring out the limitations of human effort to overcome natural imperfections or influences."

Serious Results in England and on Continent

A London medical correspondent advises that all water be boiled, "as drought is having its effect on sanitation." Deaths, attributable to the heat, have been reported from many places; cattle are suffering, heat fires have been started and water from the villages in the valleys is being carted and sold. Drinking water on the Yorkshire wolds is practically exhausted. Northamptonshire farmers report their barley to be a complete failure and the farmers of Kent are cutting theirs for hay. All crops are very poor. In London fires are being imposed for wasting water.

During the early period of the heat wave Germany was seriously affected, but a good supply of rain has revived the crops in that country. Austria has suffered, but to what extent cannot be learned.

The most reliable information upon atmospheric conditions over Europe is furnished by the maps issued by the London Meteorological Service, which show that nearly all of the low pressure areas that have crossed Europe during the past few months have followed more northern parallels than has been customary. Some of the centres of depression have been well within the Arctic Circle, and, lacking definition and vigor, have remained practically motionless over northern Russia and Siberia. Low pressure areas are, as a general rule, more progressive over moist land or waterways, but lose their energy over dry plains. For that reason Russia is peculiarly subject to drought, for the warm air



This was the beautiful Swiss Lake Morat, now dried by the great drought, baring the foundations of lake dwellers' homes built in the Stone Age. Note the piles on which the prehistoric houses rested.

from more southerly climes must pass over her territory toward the relative atmospheric vacuums that linger over her bare northern spaces.

The Russian Empire in eastern Europe and northern Asia covers an area exceeding 8,500,000 square miles, or one-sixth of the land surface of the globe. It is mostly confined to the cold temperate zones. The climate of Russia presents a striking uniformity; the dry, southeast winds extend over immense spaces of flat plains. Warm weather sets in definitely in June, generally reaching a maximum temperature in July, and near the Black Sea in August. The summers are much warmer than in corresponding latitudes of the western countries of Europe, and periods of extreme heat, such as have just been experienced, are quite unendurable.

The steppes are very fertile plateau land, intersected by numerous ravines, and furnish pasture for cattle and sheep, but for the past two months those waterways have been dry. Over those broad plains of thousands of square miles, which are extremely productive in seasonable weather, is now only black earth and desolation. There is no breeze, the air is dry and stifling; even the hardy Russian must succumb to its deadening influence. It is not a case of the survival of the fittest, but of water and food. They who have it will survive; the others will die. In the intense heat an infinite silence broods over the land and permeates the human with terror. It is unsafe to venture abroad in search of necessities. Suicide is preferable to slow starvation, and is being adopted. No animals are visible; all donkeys and horses have been eaten. No water is to be found, except in the last dregs of the Volga, and that is polluted

and proys pestilence and death. The populace have been instructed not to drink of it and have no means of boiling the water, in the absence of any sort of fuel. Conflagrations have denuded the forests of northern Russia and Siberia, and bear, deer and other food animals have been driven away.

The Volga, affectionately called "Little Mother Volga," the gigantic waterway of Russia; 2,300 miles long, sometimes eleven miles wide; draining a country three times the size of France, with a delta of seventy-two miles, is the stream the water of which is fast being evaporated and now so polluted as to be unfit to drink. Our great Hudson is a babbling brook in comparison.

The famous "black earth" districts, the most fertile agricultural portion of the Empire, if not of the world, have been repeatedly visited by famine. A succession of bad harvests has been more disastrous to Russia than to other countries, excepting possibly China, and it is in those fertile districts that the worst famines occur.

The very word Siberia has justly become synonymous with a land of intense cold. But it is also a land of intense heat, which at times is more insufferable than an equal degree of heat at several latitudes further south. The heat in northern Russia and Siberia does not prevail long after the first of September, and cool days reach southern Russia by the first of October, and about one month later the mercury ceases to rise above the freezing point.

China has undergone the trials of famine and pestilence since long before Christ. Those calamities in that country are not so much due to climate and atmospheric conditions as to absence of sanitation. While they may be augmented by heat

Even Moist England Has Shortage of Potable Water, but Scandinavia and Germany Get Welcome Rain in Time to Save Their Crops

waves and aridity, those are not the primary causes, for unusual atmospheric conditions do not occur at such regular intervals as do the periods of scourge of one sort or another. It is possibly true that some parts of China are in great distress and urgently in need of food at the present time, but the recent hot wave over Europe and the East is not the cause of their suffering.

Poland seems to have been well cared for by the elements and to have escaped the devastation suffered by her neighbors. She seems to possess a sufficiency of essentials, and thereby presents to the hordes of starving Russians a most attractive foraging ground for those bare necessities of which they have been deprived through no fault of their own. Thousands of the starving from the Volga districts are already migrating southward on foot. Commander John J. London, U. S. N., of the cruiser St. Louis, is reported to have said that the fleet of seven destroyers was kept busy caring for refugees coming from the Black Sea ports. He described the condition of the 150,000 Russian refugees in Constantinople as pitiable.

The health situation, as reported by Mrs. Harrison and others, is distressing. Cholera is reaping a rich harvest along the Volga and in remote districts. Reports state that it is spreading throughout Russia. Petrograd denies the presence of cases of cholera in the city, but Moscow acknowledges many. The health department is embarrassed by limited means of transportation. More than 50,000 cases had been reported up to July 31. The health department has started a system of compulsory inoculation in the hope of retarding the spread of the disease. Typhus has been mentioned as a menace that is probable with the approach of cold weather.

It is well known that the transportation facilities of Russia are at their lowest efficiency. Railways are very nearly useless, and other means are inadequate; all are

in the hands of the Bolsheviks and it is they who insist upon dispensing what may be donated. Therefore, as Captain Emmett Kilpatrick says: "If America starts relieving the Russians, I hope it will watch the food go down the throats of the hungry, otherwise the Communists will be the only ones provided for. Already the Soviet is sending out propaganda urging that only the fit should get food. All others must die."

Commenting on this subject, a Vice-Consul said: "The Bolsheviks took all the produce from the farmers last year; so this year they planted only enough for their own use and that is gone. The supplies that are sent by America will be delivered to the Bolsheviks and the sufferers will have a hard time getting any. The cities are always in want."

The Bolshevik newspapers admit the deplorable condition of the railways and say: "This disorganization of the railway traffic has become worse, despite efforts of the Soviet Government to alleviate it. They further admit that the famine may be even worse than in previous years of Bolshevik regime."

The most difficult problem to be solved is not the furnishing, but the delivery of food to the starving. It will require great ingenuity to get it beyond the hands of the Bolshevik. Mr. Hoover and his skilled organization will find great difficulty in following the delivery of supplies, regardless of any understanding or agreement with the Soviet Government. Most of the famine stricken are in the heart of Russia and under the present deplorable transportation facilities it would take from three to four weeks to reach them. Cold weather will be at hand long before the survivors can possibly be succored.